

REMARKS

Applicant respectfully requests reconsideration and allowance of claims 1-10 that are pending in the above-identified patent application. In view of the following discussion, Applicant submits that all pending claims are in condition for allowance. Applicant incorporates its remarks from the October 9, 2007 response herein.

At page 2 of the Office Action, the Examiner rejected claims 1-7, 9, and 10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,947,118 (“the ‘118 patent”) in view of U.S. Patent No. 5,871,010 (“the ‘010 patent”), and further in view of U.S. 5,472,143 (“the ‘143 patent”). At page 5 of the Office Action, the Examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over the ‘118 patent, the ‘010 patent, the ‘143 patent, and further in view of U.S. 4,889,114 (“the ‘114 patent”). Applicant respectfully traverses the Examiner’s rejections.

Claims 1-10 recite “a plurality of cells having elevations and/or depressions in a repeating pattern of an egg-carton arrangement.” Neither the ‘118, ‘010, ‘143, nor ‘114 patents disclose this feature. The ‘010 patent specifically teaches that the elevations and/or depressions are in the form of grooves (col. 7, lines 9-19; and FIGS. 3-6). None of the other cited patents cures this deficiency in the ‘010 patent. Accordingly, the above-quoted features of independent claim 1 and the subject dependent claims are neither disclosed nor suggested by the cited art of record.

In response to the Applicant’s October 9, 2007 arguments, the Examiner alleges that “egg-carton” elevations/depressions would increase the surface area of contact as compared to parallel grooves, for example, because it seems as though “the egg-carton shaped depressions would involve removing more material from the surface to produce the depressions in an egg-carton shape, thereby actually further reducing the contact area of the medicament with the surfaces of the inhaler as compared to parallel grooves.” The Examiner further alleges that the ‘010 patent discloses that the grooves may be circular or curved as opposed to simply linear and thus discloses “egg-carton” elevations/depressions or that one skilled in the art would expect the device of the ‘010 patent to perform equally well with the egg-carton shaped elevations/depressions. Applicant respectfully disagrees with the Examiner’s statements.

Applicant submits that the ‘010 patent specifically teaches that the elevations and/or depressions are in the form of grooves. When disclosing a curved or circular configuration in col. 5,

lines 40-47, the ‘010 patent is disclosing the shape or path of the indentation or raised area, not the surface walls of the valleys between the elevations and/or depressions. Indeed, the ‘010 patent does not disclose or suggest that the surface walls of the valleys are sloped or tapered between the plane of the inhaler surface and the elevations and/or depressions. The ‘010 patent only discloses, particularly in FIGS. 3A-6C, valley walls which are perpendicular to the plane of surface and the elevations and/or depressions. Employing circular or curved elevations and/or depressions without the sloped or tapering walls is structurally different from employing “egg-carton” shaped elevations and/or depressions because the structure of the surface walls affects the amount of interaction between the particles and the inhaler surface. As such, Applicant submits that the ‘010 patent does not disclose “egg-carton” shaped elevations and/or depressions, which have sloped or tapering walls between the plane of surface and the elevations and/or depressions.

Applicant agrees with the Examiner's position that the purpose of the grooves of the ‘010 patent is to minimize the contact area between the medicament and the surfaces of the inhaler. Thus, Applicant maintains from its October 9, 2007 response that the ‘010 patent teaches away from increasing the surface area of contact between the medicament and the surfaces of the inhaler, which would occur if one skilled in the art employed the egg-carton elevations and/or depressions of the present invention instead of the parallel grooves of the ‘010 patent. Applicant submits that the Examiner draws an improper conclusion that the contact between the medicament and surface of the inhaler would be reduced using egg-carton depressions as claimed. Although more material might be removed from the surface to produce egg-carton depressions, Applicant submits that the interaction between the egg-carton depressions (and elevations) would increase the contact area between the medicament and the surfaces of the inhaler as compared to parallel grooves. Indeed, a sloped or tapered wall has a larger surface area to make contact with a particle than a perpendicular wall.

With reference to the Figure submitted herewith, egg-carton elevations and/or depressions, such as in the present invention, inherently have a greater surface area of contact with the medicament than narrow grooves, such as in the ‘010 patent. Indeed, egg-carton shaped structures, according to one or more embodiments of the present invention, increase the surface area of contact as compared with parallel grooves of the ‘010 patent. A cross-section of a depression taken along

line A-A shows particle 1 in contact with the surface area of the egg-carton depression. Particle 1 has a diameter of 5 microns (μm) while the egg-carton depression has a height of 2.5 microns (μm).

In accordance with col. 6, lines 12-17 of the ‘010 patent, the groove has a pitch, measured from the center of a valley to the center of a raised area, of about 2.5 microns (μm). The particle sizes disclosed in the ‘010 patent are disclosed as being about 2 to 6 microns (μm). The first cross-section of a groove of the ‘010 patent taken along line B-B shows particle 1 in contact with two points 4, 6 at the top of the groove. Particle 1 is larger than the dimensions of the groove and, thus, rests on top of the groove and not in the groove. The second cross-section taken along line B-B depicts particle 2 with a diameter of about 2.5 microns (μm), which fits into the groove as shown. The contact between particle 1 and the groove of the ‘010 patent is minimized to two points 4, 6. Contact between particle 2 and the groove of the ‘010 patent is minimized to three points 9, 11, 13.

In contrast, the contact between particle 1 and the egg-carton depression of the present invention is not minimized. Indeed, particle 1 has a larger area of contact with the egg-carton depression due to the sloped or tapered characteristics of the egg-carton depression. Similar contact may be shown with egg-carton elevations. As such, those skilled in the art would recognize that egg-carton shaped structures, such as in the present invention, have larger surface area in contact with the particles of the medicament as compared with the grooves of the ‘010 patent. Therefore, those skilled in the art would be discouraged from modifying the device of the ‘010 patent with egg-carton elevations and/or depressions when the device of the ‘010 patent must have a minimized surface area of contact with the medicament.

Thus, Applicant submits that the ‘010 patent does not disclose or suggest employing egg-carton shaped elevations and/or depressions. As such, Applicant submits that claims 1-7, 9, and 10 are patentable over the ‘118 patent, the ‘010 patent, and the ‘143 patent, alone or in combination. The ‘114 patent does not cure the aforementioned deficiencies regarding independent claim 1, from which claim 8 depends. As such, Applicant submits that claim 8 is patentable over the ‘118 patent, the ‘010 patent, the ‘143 patent, and the ‘114 patent, alone or in combination.

In view of the foregoing, Applicant submits that the combined teachings of the cited art fail to disclose all of the features of the invention as claimed in independent claim 1, or dependent claims 2-10 of the instant application. Accordingly, Applicant respectfully requests that the Examiner’s § 103 rejections of the subject claims be withdrawn.

In view of the foregoing, Applicant submits that the instant claims are in condition for allowance. Early and favorable action is earnestly solicited. In the event there are any fees due and owing in connection with this matter, please charge same to our Deposit Account No. 11-0223.

Dated: January 24, 2008

Respectfully submitted,

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